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## MANAGEMENT OF BRINJAL SHOOT AND FRUIT BORER, *LEUCINODES ORBONALIS* (GUENEE) BY USING BIO RATIONAL PESTICIDES

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**Abstract:** Brinjal is attacked by many harmful insect and pests but brinjal shoot and fruit borer is leading over the other pests which cause a significant loss and required management for profit making. Farmers use chemical insecticides to increase the yield of crop which is not righteous for environment and soil atmosphere. These pesticides spread into the air, water bodies like rivers, canals, soil due to their regular use in the form of spraying, powders, solutions in the agricultural land which increase soil infertility and make soil unfit for microorganisms. To combat from such situation bio pesticides use in place of chemical insecticides that not only control the insect pests but harmless for environment. Bio rational pesticide is made up of natural source and good for long term usages because it not poses risk of residue and maintain the natural ecosystem.

**Keywords:** Brinjal, Bio rational pesticides, Shoot & fruit borer, *Leucinodes orbonalis*, Management

## POTENTIAL NOCTURNAL POLLINATORS OF INDIAN SANDALWOOD (*Santalum album* L.) IN SOUTH INDIA

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**Abstract:** *Santalum album* L., also known as the royal tree, is a significant evergreen species that contributes greatly to ecological conservation, especially by offering shelter to a variety of organisms, such as moths. To explore the diversity of moth species linked to these trees, comprehensive surveys were carried out in sandalwood plantations across South India. A total of 56 moth species from 15 families were recorded, with 27 species being newly identified on *Santalum album*. The Erebidae family was the most diverse, with 21 species, followed by the Geometridae family (8 species) and the Psychidae family (6 species). Other families noted include Cossidae and Limacodidae (3 species each), in addition to a species from Crambidae, Eupterotidae, Lecithoceridae, Noctuidae, and Tortricidae. Moreover, the study found that pruned plantations negatively impacted moth diversity and were linked to higher moth infestation levels on the trees.

**Keywords:** Sandalwood, Lepidoptera, Moths, Pruning, Insect conservation

## SCREENING OF MUNGBEAN (*VIGNA RADIATA* L. WILCZEK) GENOTYPES AGAINST SALINITY STRESS IN SEMI-ARID REGION OF NORTH-WESTERN HARYANA

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**Abstract:** Mungbean is a vital, eco-friendly legume rich in proteins, vitamins, and minerals, crucial for sustainable agriculture. However, its productivity is severely hampered by various abiotic and biotic stresses, with salinity being a particularly severe environmental challenge. The present filed study was conducted at Soil Research Farm, CCS HAU, Haryana for the screening of thirteen genotypes including for national checks (Pusha Vishal, IPM 02-3, Pusa 9531, Virat (IPM 205-7) under saline water irrigation ( $EC_{iw}$  5-6  $dS\ m^{-1}$ ). The results revealed that while plant height, pods per plant, and pod length are not significantly affected by saline stress, but seed weight, seeds per pod and seed yield varied significantly among different genotypes. The significant highest seed yield obtained for PMS 9 (504.77  $kg\ ha^{-1}$ ) and PMS 12 (501.03  $kg\ ha^{-1}$ ) being statistically at par with PMS 10, PMS 13 and PMS 8. Lowest yield was recorded with IPM 02-3 genotype. Genotypes like PMS 9 and PMS 12 likely possess traits that enhance their ability to manage saline stress, such as improved salt tolerance or adaptability.

**Keywords:** Mungbean, Screening, Genotypes, Salinity stress

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## **STUDY OF SOIL AND AGRONOMIC TRAITS IN MUNGBEANGENOTYPES UNDER SALINE WATER IRRIGATION IN SEMI-ARID REGIONS OF HARYANA**

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**Abstract:** Mungbean is an ecologically important legume, but its productivity is often affected by its susceptibility to salinity stress. To address this challenge, it is crucial to identify and screen varieties that demonstrate strong performance under saline conditions. This study, conducted during the *Kharif 2022* at CCSHAU, Hisar, aimed to evaluate **sixteen mungbean varieties** under saline irrigation ( $EC\ 5.0\ dS/m$ ). Seeds were sown on **April 11, 2022**, in a **randomized block design** with three replications. Results showed significant yield variations among genotypes. IPM02-3 (check) had the highest yield (**4.84 q/ha**), followed by PMS-9 (**4.67 q/ha**), while PMS-15 (**2.73 q/ha**) had the lowest. IPM02-3 (check) also exhibited the **tallest plants (59.30 cm)**, **longest pods (9.04 cm)**, **most pods per plant (27.30)**, and **highest seeds per pod (9.48)**. The mean soil salinity ( $EC_{1:2}$ ) at harvest was **1.11 dS/m**. Identifying salt-tolerant varieties like IPM02-3 (check) can help in improving mung bean cultivation under saline conditions.

**Keywords:** Genotypes, Saline water, Seed yield, Yield attributes

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## **STUDY ON POLLEN MORPHOLOGY AND BIOCHEMICAL STUDIES IN HEALTHY AND INFECTED PLANT PARTS OF VIGNA RADIATA L.**

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**Abstract:** Pollen morphology has great significance in field of plant sciences especially in field of Taxonomy and helps to classify and understand the evolutionary history of plants. At present, it plays a key role in taxonomy for identification of plant flora and in forensic department. It contains all genetic information for complete plant. Our observation indicates that non-acetolysed pollen grains of *Vigna radiata* show reduction in size as compared to acetolysed pollen grains. In case, the effects of healthy and infected plant parts on the nutrient uptake and distribution, it revealed that total N and P and its distribution in selected plant parts such as in stem, leaf, anther and pollen grains clearly declined in infected plant as compare to healthy (control) plant parts due to fungal infection. Present study also indicates that the development of chlorophyll-a and chlorophyll-b are affected by fungal infection in infected plant leaf disc as compare than healthy plant leaf disc. Thus, a comparison of chl-a and chl -b development indicates that in general chl-a development is more as compare than chl-b in both healthy and infected leaf disc of *Vigna radiata*.

**Keywords:** *Vigna radiata*, Acetolysis, Fungal infection, Pollen grains, Chlorophyll

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## PLANT DIVERSITY IN THE HOME GARDENS OF HALAKKI VAKKALIGA TRIBES IN UTTARA KANNADA

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**Abstract:** The Western Ghats, a global biodiversity hotspot, supports rich flora and fauna, with indigenous communities playing a vital role in conservation. This study examines plant diversity in the home gardens of the Halakki Vakkaligatribes in Ankola, Uttara Kannada, Karnataka. The research employs ecological indices, including the Shannon-Weaver Index ( $H' = 3.242$ ) and Simpson's Diversity Index ( $1 - D = 0.928$ ), to assess species richness and distribution. The findings indicate a highly diverse plant community, with a Simpson's Dominance Index ( $D = 0.071$ ) confirming minimal species dominance. The Simpson's Reciprocal Index ( $1/D = 14.07$ ) highlights species coexistence, essential for agroecological stability. Ankola's humid coastal conditions, high annual rainfall (3000-3500 mm) and lateritic soils foster diverse plant species, including fruit trees (*Musa paradisiaca*, *Mangifera indica*, *Psidium guajava*), spices (*Piper nigrum*, *Curcuma longa*), medicinal plants (*Ocimum tenuiflorum*, *Aloe barbadensis*) and plantation crops (*Cocos nucifera*, *Areca catechu*). The high frequency and relative density of banana (17.54%), coconut (11.35%) and areca nut (5.13%) underscore their economic and agricultural importance. In contrast, sacred plants such as *Azadirachta indica* (Neem) and *Calotropis gigantea* (Ekke) demonstrate cultural significance but lower relative density. The findings provide a scientific basis for conservation efforts and reinforce the role of traditional home gardens in maintaining biodiversity in the Western Ghats.

**Keywords:** Halakki tribe, Home gardens, Biodiversity, Agroforestry, Ankola